DOCUMENT RESUME

ED 125 530 IR 003 567

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TITLE A Personalized System of Instruction in Library Use.
INSTITUTION Instituto Tecnologico de Monterrey (Mexico).
PUB DATE 76
NOTE 14p.

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS College Libraries; Higher Education; Independent Study; *Library Instruction; *Library Skills; Performance Based Education; *Programed Instruction
IDENTIFIERS *Instituto Tecnologico de Monterrey; Mexico (Monterrey); *Personalized System of Instruction; PSI

ABSTRACT

In response to a survey which showed library users to be deficient in research skills, the Technological Institute of Monterrey, Mexico, developed a programed course in library skills using the Personalized System of Instruction (PSI). The course structure featured mastery learning, self-pacing, student tutors, and emphasis on written materials. Each unit contained an introduction which attempts to motivate the student, followed by instructional objectives and materials, and evaluation. The elective course consisted of 12 units covering library resources, specialized sources in engineering and business administration, and research techniques which enable the student to investigate topics in his own field of interest. (EMH)

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ED125530

A Personalized System of Instruction in Library Use

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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IR003567

A Personalized System of Instruction in Library Use

The library of the Instituto Tecnológico de Monterrey (ITESM), Mexico, by means of recent surveys, found that a significant number of students were unable to fully use the library resources. This seems to be the case in a developing country such as Mexico simply because the majority of the people have little or no contact with any type of library unless they attend an institution of higher learning. Since at ITESM the library is considered a very important investment, it was decided that some sort of introductory program was needed to instruct the students in the use of the library.

In reviewing the literature of the past few years concerning instruction in library use, it was observed that many types and forms had been utilized. Principally because of the shortage of qualified staff and the number of students involved it was the general consensus to take advantage of programmed instruction which had met with favorable results in other studies(1,2). It was felt that this instructional method could eliminate various complaints about the standard orientation tour such as the disturbance created, lack of attention, misinformation, inability to hear everything, fatigue for all concerned, and the amount of staff time involved(3). The same was felt concerning the many viewpoints about the librarian in the role of teacher such as the librarian may not have the talent to teach and instruction should not be handled by the library since among other things it detracts from the reference function(4)(this is not in any way denying the teaching function of the library but merely commenting on the role of librarian as teacher).

Since no particular programmed method had been applied in depth in any of the literature studied, it was proposed to use an innovative approach called the Personalized System of Instruction(PSI) or Keller Plan(5) which is being used successfully in other courses at ITESM as well as other parts of the world(6). With experienced people available to help design the course, the program proceeded ahead as vast possibilities were seen for adapting this system to teaching the use of the library.

PSI

Notably in applying PSI standards to library instruction, different aspects of the library resources are divided into a series of units, written with the idea that "each unit is to make a well defined amount of course content as easy as possible to learn"(7). But before getting into the unique modular setup of PSI, it would be better to first discuss its basic features(8):

1. The students advance through the course only after they are able to pass an examination on each unit (mastery learning).
2. The students proceed through the series of units at their own pace (self-pacing).
3. In communication between students and librarian, the emphasis is that all important information be written in the unit (emphasis on the written word).
4. Teaching assistants (student proctors) are used for peer tutoring and other course work.
5. Lectures are used as supplements to the course rather than sources of important information.

Mastery Learning

The material presented in each unit concerning a certain aspect of the library and/or source of information is reviewed by the students knowing they must eventually also pass an examination over what is covered. Mastery of a unit is therefore demonstrated by achieving an acceptable grade and only after such a proficiency are the students permitted to go on to the next unit.

This idea in learning is often referred to as "reinforcement theory"(9), a system of behavior which traces its beginnings to the work of B.F.Skinner and applied to PSI simply means that each unit must be well understood before proceeding to the next. Since the students learn from previous mistakes until "mastery" is achieved they become more motivated because there is no penalty for repeating examinations and thus should lead naturally to more

confidence in taking such tests

Self-Pacing

A standard approach for introduction to a library is a controlled pace such as an orientation tour, audiovisual and/or lecture instruction. The ITESM library had gone through the efforts of organizing orientations and helpful lectures, usually experiencing negative reactions from the participants. This lack of progress was blamed mainly on the inexperience of students in libraries as well as the inexperience of the library staff in giving such instruction. Another significant response from students was that they were not given enough time to examine the library materials being discussed.

In PSI the students' progress depends on their own work to provide a self-orientation within the library and with no time limit they are able to stay with the material as long as needed, thus developing an alternative to the controlled-pace methods mentioned. In regard to the time factor there is a restriction in that the students must complete all the required units by the end of the semester (or similar time period) and thereby must pace themselves accordingly. Some may finish in a few weeks, others may use the whole semester; all according to their own rhythm and style.

Emphasis on the Written Word

The ability of the librarian to convey the necessary knowledge to potential library users does not depend on adeptness in giving lectures, tours and the like but in PSI is largely subject to the ability to write down in a unit the specialized knowledge on a specific facet of the library. The idea here should not be that there is to be no communication between librarian and students. Much to the contrary, contact is encouraged in order to solve specific problems that learners may have, but at the same time avoiding needless repetition by having all course matter written in the unit.

Proctors

Once all the units and other necessary preparations are finalised, trained

assistants can be introduced into the course primarily to remove the librarian as the authority figure normally associated with an instructor. In such a case the students are more open with their peers, developing a good rapport concerning the course content and its objectives. Eventually in PSI proctors may be drawn from former students who have taken the course and thus improve the working relationship even better.

Other assistance also given is to hand out the necessary course implements, grade examinations and record the progress of each individual. These proctors handle the majority of the work throughout the course and act as liaison between student and librarian, suggesting changes, improvement, and the like while at the same time explaining the intricacies of PSI to the participants. Any serious dilemma that can not be solved by the assistants is referred to the librarian.

Supplements

Since the required work for the course is thoroughly explained and elaborated in the complete series of units, all other helpful information is used to supplement the course. These extra sources for additional knowledge can be lectures by a subject specialist or librarian, audiovisual programs, or special orientation; always keeping in mind that they are not required for the examination.

THE UNIT

The unit is the means by which PSI is carried out. The capability of each unit relates to the next, assembling all in one sequential effort, but moreover the effectiveness depends largely on the standard component unit which consists of an introduction, objectives, information and explanation, and study guide, along with examinations for each unit(10).

The Introduction

In beginning a unit, possibly the most important aspect in motivating the students is the introduction. This initiative should be brief overview

of the library material to be covered and survey the essential concepts and routines to be followed in overcoming difficulties with a certain area of the library. Of course, the style of the librarian(s) designing the course will have a lot to do with the curiosity generated for the subject, but overall the two most important items to be included in the introduction are interest and completeness.

Objectives

In order to communicate what is to be learned, i.e. the expected terminal behavior regarding a certain aspect of the library, a good PSI unit should impart well written objectives, often described as instructional or behavioral.

Such an undertaking will serve the learning process of the students as well as the teaching function of the librarian since from the students' standpoint these designs for learning allow the advantage of going first to the less understood material and only after feeling secure with each objective can the examination be taken. On the other hand, the librarian must propose meaningful objectives in order to judge and assess the effectiveness of each unit. Badly formulated desired outcomes lead to confusion and ultimately to a poor evaluation of the course.

A careful approach is therefore needed and there are good guides available for those unfamiliar with this area(11,12). Fortunately in the area of library use there exist guidelines done by the Association of College and Research Libraries(ACRL) Bibliographic Instruction Task Force which has produced a model statement of objectives for library use "which individual libraries should review and adopt to their purposes"(13).

To avoid getting into this specialized field too deeply it will suffice here to give the basic essential qualities of objectives which must(14):

1) Specify:
   a) The capabilities the students will achieve;
   b) The characteristics of the desired capabilities;

c) The conditions under which the desired capabilities will be achieved.

2) Demonstrate that the desired behavior is:

a) Natural according to the learning ability of the students;

b) Observable

c) Able to be evaluated.

The following examples concerning the use of the card catalog will point out the incorporation of the basic qualities outlined above into objectives:

Example 1: The student after finishing this unit will know how to successfully use the various card catalogs located in the library.

Evaluation: Nothing is specified, the verbs "know" and "use" are too vague in outlining an observable behavior.

Example 2: A) In the guided exercises of this unit the student will (15):

1) locate the different types of card catalogs available,

2) determine if the library has in its holdings given sample titles,

3) find and write "see" and "see also" references for given subjects,

4) for given sample bibliographic entries, identify: author, title, publisher, call number, year of publication (and others according to individual librarians' preference).

NOTE: this work must be turned in for grading before taking the examination.

B) Upon completion of this unit the student within a 15 minute period will be able to:

1) list all types of card catalogs in the library,

2) define the function of "see" and "see also" references,

3) given a sample catalog card containing bibliographic data, identify author, title, publisher, etc.

Evaluation: Assuming that the card catalog is not beyond the learning

ability of the students, all criteria for well stated objectives are met: certain conditions are specified for the expected behavior and the terms for observing the behavior are set(for Part A, guided exercises, and for Part B, examinations).

Information and Explanation

In this section come the important areas and works involved that are to be learned. For card catalogs this would include a map of the library marking their locations, descriptions of the function of different types of sample catalog entries, explaining the elements and function of each, and samples of "see" and " see also" references, defining where used and with what advantages.

Optional procedures, supplementary but not necessary, to this section are to refer students to audiovisual aids, lectures, required readings or references to various works, all giving further explanation in more detail to provide a more complete idea of the area being reviewed.

Study Guide

This section generally consists of a series of questions or problems relating to the stock covered in the unit which will be worked out by the students. These practice exercises provide the necessary feedback in order to let the librarian(through the student proctor) know if the material is being understood and the students have a method for evaluating their own performance before proceeding with examination(an example here would be to design exercises employing the objectives A1-4 in Example 2 of the section "Objectives").

Examinations

As stated before, the decision point as far as advancing in the course is concerned, centers around the ability of the students to demonstrate their mastery of the unit. In order to do this, an examination must be constructed so as to test every learning objective in a given unit and permit

that the examination be repeated until an acceptable comprehension is indicated.

This aspect of repetition with no failure brings about the need for multiple copies and also these different copies will aid in preventing cheating. Objective questions should be favored over essay mainly to present less material to judge and facilitate the grading of tests. The following are some types of questions that can be used:

1) True/False:

"There are card catalogs located on the third floor of the library."

2) Multiple choice:

"The main entry for a book normally lists

a.- author

b.- title

c.- call number

d.- all the above."

3) Fill in the blank:

"The main card catalog is located _____."

4) Matching:

"Match the following elements found on a catalog card with those on the sample card given with the test:

a.- author,

b.- title

c.- call number

d.- (etc)."

CONCLUSION

The course now in operation taken for credit as an elective at ITESM consists of twelve units: the first seven covering the library and general sources of information available, the next four covering specialized sources in Business Administration or Engineering depending on the students course of

studies, and the last unit outlining methods which enable the students to research a topic in their field of interest. The practical part of this last unit is a bibliography on the chosen subject which the students submit as their final examination. The decision to give the course for credit was made in order to compel the students to seek a good grade, i.e. complete the twelve units, and also to avoid a lackadaisical attitude toward the coursework.

In order to relieve congestion on materials to be examined, the first introductory unit which presents the library and the card catalog is regarded as the basic first unit for everyone starting the course. Since the succeeding six units handle separate subjects and do not build on the former units, consequently different groups of students follow various patterns until the eighth unit where they begin to proceed in numerical order. Accordingly this arrangement along with self-pacing allows a spreading out of students after a few weeks, thus alleviating the possible constant heavy use in one or more areas which may result from such a course.

An important descriptor that has been used in referring to this course since its inception in January, 1975 is the word "flexible." The program has stood on its own as an elective and has also been integrated into three introductory courses in Chemical, Industrial, and Mechanical Engineering. With everything still in the experimental stage the often stated problems of what materials should be taught, optimal class size, and overuse of materials are still to be solved. Advantages can be seen when the students occupy themselves with the work, contemplate the information intently, and progress according to their own self-drive. The outcomes for the librarian, after a large amount of time orginally spent in creating, is that updating with new material becomes less of a chore and obsolete material is easily removed. With well trained assistants the librarian is allowed to become more of an adviser modifying the role of teacher while not rejecting it. But the real profit comes when the librarian/user interface goes one more

step and the student "learns when to use the librarian as a resource person"(16).

And finally to sum up, the following excellent terms of reference(17) are indispensable in giving the needed bearings during the development of a basic PSI course in library use:

"1) Choose good readable texts and references, written at the student's level.

2) Make the first units easy, to build confidence; increase difficulty gradually.

3) Avoid including too much material in each unit; the units have to appear manageable to the students.

4) Include review material in problem assignments and quizzes, when possible.

5) Make quizzes as comprehensive and consistent with unit objectives as possible, yet as brief as possible for most rapid grading.

6) Make use of faster students to tutor slower ones.

7) Encourage feedback from the faster students so that reading materials or quizzes can be revised if necessary to make them more effective for the later students.

8) Keep a separate folder of quizzes and a progress chart for each student and provide an area where students can review the contents of their folders.

9) Choose tutors carefully(in descending order of importance, they should be dependable, articulate, willing to admit what they don't know, and knowledgeable). Reward them appropriately; they are keys to success of the system.

10) Start small and be prepared for a large initial expenditure of time writing assignments and quizzes."

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